PRESS RELEASE

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Medicine without Meds: Revolutionising healthcare with digital solutions

A new book by researchers from the Yong Loo Lin School of Medicine, National University of Singapore describes digital solutions as a new way to help patients manage symptoms for pain, diabetes, hypertension, cancer and more. Is this the future of medicine?

Singapore, 17 October 2023—Some patients with sleep disorders, back pain, diabetes, cancer, and attention-deficit/hyperactivity disorder are benefitting from digital health interventions that use software programmes, often delivered through mobile apps or web-based platforms, to treat, manage, or prevent a medical condition. Designed to provide therapeutic benefits and backed by clinical evidence, these digital interventions often complement traditional healthcare approaches.

"Medicine Without Meds: Transforming Patient Care With Digital Therapies" showcases this new approach, believed to be one of the most promising avenues for improving patient outcomes and the provision of healthcare on a global scale. It also provides a much-needed blueprint for accelerating digital innovation to patients.

While relatively new in the healthcare arsenal, digital therapeutics or DTx, is a new class of medicine akin to drugs. According to the book's three authors, DTx has the potential to revolutionise patient care by improving access to healthcare, personalising treatment, and increasing convenience in achieving better health.

The book provides actionable ways of bringing digital therapy to fruition and inspiring new AI-driven innovations that could revolutionise the future of medicine. Written by researchers from the **Institute for Digital Medicine (WisDM) at the Yong Loo Lin School of Medicine**, **National University of Singapore (NUS Medicine),** the book claimed the top spot on Amazon Best Sellers list, in the Health Policy category and History of Medicine category, in May 2023, after it was first made available for pre-orders.

The Institute's director and one of the book's three co-authors, **Professor Dean Ho**, said, "Our vision is to build good digital solutions that are also cost-efficient and sustainable in the long run. From the birth of an idea to its successful implementation, it is critical to engage the key stakeholders closely, including patients, clinicians and investors. The book offers a roadmap on how digital innovation can be developed and implemented effectively, to serve patients, caregivers, and those who may not be in ill health and want to get better."

Since the team was formed in 2018, researchers have developed digital health solutions to help a patient with advanced prostate cancer who was recommended a 50% reduction in dose of an investigational inhibitor drug for increased efficacy, and subsequently resumed an active

lifestyle. In a larger cohort of solid cancer patients, personalised treatment with the CURATE.AI platform saw a marked reduction of nearly 20% on average. This digital solution was widely featured at the prestigious American Society of Clinical Oncology (ASCO) Annual Meeting and the ASCO Educational Book. The team also leveraged DTx to address ageing and illness-related challenges in cognitive and physical performance, such as brain cancer and cognitive decline.

In one of the team's latest DTx projects, conducted in collaboration with local technology and service providers, an application is currently undergoing validation. The app assists patients with hypertension in managing their condition by tracking body vitals, including blood pressure and heart rate, all with just a phone's camera. **Mrs Jenny Pek**, 77 years old and a participant of the ongoing study, said, "My doctor has advised me to monitor my blood pressure regularly, and I can easily do that with the help of the app. It provides me useful tips and recommendations that help me keep my diabetes under control."

Co-author **Mr Yoann Sapanel**, Head, Health Innovation, WisDM, NUS Medicine, said, "DTx offers a high degree of personalisation tailored to an individual's needs and progress. They adapt to the user's specific condition by collecting valuable data on patient progress, which not only benefits patients but also aids healthcare providers in optimising treatment plans, enabling data-driven insights and informed decision-making for the most effective personalised treatment."

Dr Agata Blasiak, Head, Digital Health Innovation, WisDM, NUS Medicine, is the third author. She said, "DTx plays an important role for Singapore and beyond, as it can allow for decentralised delivery of healthcare at home, for certain conditions. With DTx that can remotely deliver treatment and monitor outcomes, patients need not always visit the clinics or hospitals, and the overall costs of healthcare can be reduced. DTx often works by providing rewarding interactions and nudges through mobile apps, to empower patients to understand and take charge of their condition, make lasting changes in their lifestyle and develop habits for better health and a better life."

Published as a trade book by the Johns Hopkins University Press, the oldest continuously running University Press in the United States, the book's foreword is written by American musician and business executive **D.A. Wallach**, who is passionate about technologies poised to reinvent the practice and delivery of medicine. It also features contributions and insights from various entrepreneurs, executives, patients and clinicians globally, including **Associate Professor Ngiam Kee Yuan**, Group Chief Technology Officer, National University Health System (NUHS) and Deputy Director of WisDM; **Associate Professor Robyn Mildon** from NUS Medicine's Centre for Holistic Initiatives for Learning and Development (CHILD) and Centre for Behavioural and Implementation Science Interventions (BISI), and Founding Executive Director of the Centre for Evidence and Implementation, Australia; **Dr Eddie Martucci**, CEO and Co-founder of Akili Interactive Labs, United States; and **Owen McCarthy**, President and co-founder of MedRhythms. The cover was artfully designed with **Shian Ng**, an acclaimed Singapore artist.

The book is available for pre-orders at SGD $58.36 at Kinokuniya Singapore, and at USD $32.95 at all major retailers in the US, Europe, Australia, and other markets like Taiwan, Japan, and Korea—including Amazon, Barnes & Noble, Books-A-Million, Hudson, Walmart, Waterstones, Books.com.tw, Book Soup, and Bookshop.org. Physical copies of the book are made available worldwide from today. All author proceeds from the sale of the books will be donated to the WisDM Patient Impact Fund, to help patients in Singapore.

More information on the book can be accessed at https://medicinewithoutmeds.tech/.

For media enquiries, please contact:

Gladys SIM
Senior Assistant Manager, Communications
Yong Loo Lin School of Medicine
National University of Singapore
Tel: +65 9007 1322
Email: gladyssim@nus.edu.sg

About National University of Singapore (NUS)

The National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education, research and entrepreneurship, with a focus on Asian perspectives and expertise. We have 16 colleges, faculties and schools across three campuses in Singapore, with more than 40,000 students from 100 countries enriching our vibrant and diverse campus community. We have also established more than 20 NUS Overseas Colleges entrepreneurial hubs around the world.

Our multidisciplinary and real-world approach to education, research and entrepreneurship enables us to work closely with industry, governments and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, research centres of excellence, corporate labs and more than 30 university-level research institutes focus on themes that include energy; environmental and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research and cybersecurity.

For more information on NUS, please visit nus.edu.sg.

About the NUS Yong Loo Lin School of Medicine (NUS Medicine)

The NUS Yong Loo Lin School of Medicine is Singapore's first and largest medical school. Our enduring mission centres on nurturing highly competent, values-driven and inspired healthcare professionals to transform the practice of medicine and improve health around the world.

Through a dynamic and future-oriented five-year curriculum that is inter-disciplinary and inter-professional in nature, our students undergo a holistic learning experience that exposes them to multiple facets of healthcare and prepares them to become visionary leaders and compassionate doctors and nurses of tomorrow. Since the School's founding in 1905, more than 12,000 graduates have passed through our doors.

In our pursuit of health for all, our strategic research programmes focus on innovative, cutting-edge biomedical research with collaborators around the world to deliver high impact solutions to benefit human lives.

The School is the oldest institution of higher learning in the National University of Singapore and a founding institutional member of the National University Health System. It is one of Asia's leading medical schools and ranks among the best in the world (Times Higher Education World University Rankings 2023 by subject and the Quacquarelli Symonds (QS) World University Rankings by subject 2023).

For more information about NUS Medicine, please visit https://medicine.nus.edu.sg/.